BOOK REVIEWS

Amphibians and Reptiles of the Hashemite Kingdom of Jordan: An Atlas and Field Guide. Ahmad M. Disi, David Modrý, Petr Nečas and Lina Rifai (2001). 408 pp. (215 x 150 mm). Edition Chimaira, Frankfurt am Main, Germany. £37.50 (cloth).

The Hashemite Kingdom of Jordan (al-Mamlakah al-Urdunniya al-Hashimiya) is in everyday life known simply as Jordan. Geographically, Jordan bridges the gap between Iraq in the east and the Jordan River in the west. Faunistically, the book fills the gap between Leviton *et al.*'s (1992) *Handbook to Middle East Amphibians and Reptiles (*covering only a fraction of the Middle East, i.e. the triangle Greece-Iran-Sudan, according to British WW2 usage) and assorted texts on Israel's herpetofauna, all in Hebrew (recently: Werner, 1995; Bouskila & Amitai, 2001). Herpetologically, Disi *et al.*'s work – although not flawless – surpasses all of these neighbouring books put together.

The book's 408 pages (the count begins with the half title page) are allocated as follows: *Opening*, *Contents*, *Preface* (by Wolfgang Böhme) and *Acknowledgements* (10 pp.); *General part* (60 pp.); *Identification keys* (20 pp.); *Species accounts* (260 pp.); *Species of possible occurrence and/or questionable status* (16 pp.); and "Appendix" (38 pp.).

When I see, as in this case, a full page of warm *Acknowledgements* in the wake of a half page of guest *Preface*, I sense a spirit of empathy emanating from the authors. Reading on, this forecast holds water, as the book is formulated and produced very much "with the face to the reader".

The *General part* begins with *Introduction and technical notes* (3 pp.) explaining, as did Böhme's preface, that the book occupies a previously free literary ecological niche, and the book's structure and function. Of special interest here is the explanation of the distribution maps, one for each non-marine species, which are based on the system of presence versus presence-unknown in quarter-degree squares [occupying here approx. 27.5 (S-N) × 23.75 (W-E) km]. This biocartographic method produces neat standardized maps well suited for the biogeographical level, though less so for the ecological level (as intimated by the authors). The evidence for regarding a square "occupied" comprised (and is planned to comprise in a hoped-for future edition) museum specimens, literature records, photo-documentation but also observations, even of readers. From experience in neighbouring Israel, I regard the last as an unsafe source because, to cut a long story short, even the best observer will not distinguish sibling species before they are described and publicized. But probably more potential readers will be interested in the explanation of the fine set of original animal photographs, nearly all of which originate from the relevant area.

Next comes a very short list of *Used abbreviations* (0.5 p.), obviously not in the sense of second-hand abbreviations, but simply meaning abbreviations used. I shall return later to the mini-flaw of a bit of slight linguistic roughness. The list is unique in catering to the non-academic in explaining that, for example, N means north, northern; and to the non-European in explaining that I … XII mean January … December.

The biological content begins with *Geography and climate of the Hashemite Kingdom of Jordan* (7 pp.) and the following *Biogeography of Jordan* (4 pp.), well illustrated with maps and landscape photographs [in Fig. 7, "Rough distribution of the sandy areas of Jordan (dots)", the dots must have been too fine as the map looks as if all sand had been blown away]. As rightly explained in Böhme's Preface, the location of Jordan between the mesic Mediterranean, the semi-arid Irano-Turanian, the arid Arabian desert and the tropical Sudanian ecozones, increases the appeal of the book in two ways. On the one hand, the Kingdom's herpetofauna is enriched by contributions from all of these directions; on the other hand, most of the book is relevant to adjacent areas. The text brings numerous examples of trees and shrubs, and of amphibians and reptiles, representing within Jordan these diverse biogeographical and ecological regions. No formal statistics are presented to show how much of the herpetofauna is derived from each region, and indeed such statistics would neither improve our understanding nor serve any other real purpose. However, many readers may prefer to see some summary statement of the number of species in the herpetofauna and in the book. I counted 89 (of certain occurrence), of which four are anurans and four are marine turtles.

Herpetological research in Jordan, history and present state (3 pp.) gives an interesting account of the involvement of persons and institutions in local herpetological research. Naturally this is not an account of the development of the understanding of various aspects of the herpetofauna. *Field observation and collecting of amphibians and reptiles* (10 pp.) gives expert practical advice (signed separately by coauthors Modrý and Nečas) intended to advance the knowledge of the herpetofauna. *The main threats and conservation of herpetofauna* (4 pp.) and *Conservation of Jordanian nature, protected areas* (5 pp.), respectively, explain the threats to the herpetofauna and describe Jordan's nature reserves and national parks, seven locations spread across the country and representing its diverse ecology. The section on *Reptiles and amphibians in the cultural heritage of Jordan* (4 pp.) is not something necessarily expected in a field guide but is uniquely enlightening to the culture-minded. Would you expect that whereas "he is a snake" implies a sly and treacherous person both in English and in Israeli Hebrew (next door to Jordan), in Jordanian Arabic this phrase means an old person, because snakes are believed to live long? This section ends with a recipe for "Dabb Mansaf", a rice and meat dish

based on *Uromastyx* (Moslems are prohibited from eating carnivorous animals) and enriched (excuse the pun) with pine nuts. The authors gently refrain from explaining why they emphasize "Eat with right hand only."

The general part ends with a relatively thorough section on *Venomous snakes and snakebite* (17 pp.), including general principles, species by species presentations of Jordan's venomous species (recognition, behaviour, toxicity, symptoms, treatment etc.) and of course prevention and (up to date) first aid. Particularly dramatic is a lateral close up of the head of *Atractaspis engaddensis* with the long fang protruding sideways and backwards from the nearly closed mouth. Indeed, the species was described in 1950 by G. Haas, after H. Mendelssohn discovered it at the En Gedi oasis (Israel) on the western shore of the Dead Sea, picking the unknown but obviously non-viperid snake carefully up by the neck, and being envenomated by the usual backward stab. A short paragraph describes some bizarre practices of traditional folk medicine, such as burying the bitten person in sand up to his neck for a day and giving him dried desert monitor meat to eat. The authors reasonably indicate that statistically all these treatments appear to be effective, for three reasons: (1) they have a positive psychological effect; (2) in Jordan most venomous snake bite victims survive anyway, even without treatment; and (3), as always many of the apparent victims were really bitten by non-venomous snakes [including rear fanged ones].

The *Identification keys to the amphibians and reptiles of Jordan* (20 pp.) are generally good, well explained and effectively illustrated. They prudently include also the species of doubted occurrence or uncertain status presented at the end of the book. These should have been marked as such in the keys. The keys do contain in small quantities all the typical errors to which keys are prone: invalid characters – tadpole size (p. 75) is informative in only one way, for how do I know that a small tadpole won't grow further? Erroneous information on a character state – the colour of *Hyla savygnyi* is defined as "back uniform" (p. 75) although this chameleon-like species can assume a blotched pattern (at least, in other countries); vague character-state definitions, meaningful only if both alternatives are available for immediate comparison – "tail relatively short" versus "tail moderately long" (p. 81); and even a black-out-type confusion – *Sphenops sepsoides* is characterized as having "Hindlimbs reduced, small … about half the forelimbs" (p. 83) while the species is quite normal, as also depicted (p. 234), with forelimbs much smaller than hindlimbs.

The *Species accounts* (263 pp., or 64.5% of the book) of course constitute the core of the book and fulfil its main purposes – atlas and field guide. They have a uniform structure, well considered and considerate of the user. Each starts with the currently accepted *species name***,** including author and year, followed by the name under which it was originally described and terra typica, and common (vernacular) names in English, German and French (for some reason in this order). Thereafter, *Systematics*: very wisely and efficiently, the units of treatment are the species, and this short section discusses any subspeciation, with appropriate brevity. *General distribution* defines in words the world distribution of the species and *Local distribution* defines its distribution within Jordan, exemplified by a list of localities, and illustrated by a map as discussed above. The description of the *Habitat* recognizes that this can vary between parts of a wide world distribution. The *Description* is usually the longest section within the account. Each description starts with a general definition of the habitus of the animal, including size ("small", "medium-sized" etc.), covers morphology and pholidosis, then coloration, and winds up with a more exact definition of size, sometimes made vague by a statement of sexual size difference (an issue ignored in most accounts, probably rightly so in a field guide). For example "The species reaches up to 130 mm total length (SVL up to 60 mm). Males are larger and more robust than females" (p. 145). So, is 130 mm the average adult size (with the males larger and the females smaller), or a rare maximum size (possessed by a male)? *Notes on biology* naturally vary extremely in extent and types of information presented (available). Unfortunately there is usually no indication of the source of data for biological parameters likely to be affected by conditions of captivity (such as the number of eggs). Finally the *Remarks*, if any, often contain particularly interesting information, and the *Pertinent references* are an almost unique asset of this field guide. The species accounts strictly exclude anything that is not hard-core information. Thus, for example, the piquant fact that the presumably relict population of the large venomous *Macrovipera lebetina* was discovered in Jordan just recently, can be learned by the reader only through following the references at the end of the accounts (in this case, Al-Oran *et al*., 1998).

The species accounts include photographs of all species (on average 2.2 photographs, each of half-page size, per species). These are carefully selected for relevance. The most frequent combination is a whole-animal photograph and another showing a close-up of the head, but there are some presentations of sex differences, juveniles, postures, and habitats. The vast majority is in colour, in almost all photographs the animals are on the correct substratum, and the quality of almost all is excellent or very good. Besides the full scientific name, the legend under each photograph also describes (unlike the abbreviation of the genus name in the photographs accompanying the keys) the geographical source of the animal (mostly in Jordan; otherwise closely adjacent areas) and the name of the photographer (most are by coauthor Modrý).

The species accounts are followed by *Species of possible occurrence and/or questionable status* (16 pp.), consisting of another nine species presented in the same format. The reasons for these species to be included in the book but banished from the main series of species

accounts vary greatly. The commonest reason is that the species has been encountered in Jordan only once or twice, in circumstances not above suspicion of introduction. This series of accounts is somewhat inferior to the main series. First, the order of presentation is unclear. But mainly the selection of the photographs, which should help readers to identify any additional finds of these species, is not ideal for the purpose. Thus, for *Triturus vittatus*, a male in the aquatic phase is shown, doubly impressive because, although this is not stated, it clearly is the spectacular *T. v. ophryticus* from northern Turkey (Özeti & Yilmaz, 1994; Baran &Atatür, 1998). It would have been more useful to portray a *T. v. vittatus* from Israel or southern Turkey, and especially the terrestrial phase, which can be encountered under stones. For *Acanthodactylus* cf. *pardalis* a typically orange-coloured Egyptian male of *A. pardalis* is shown, although geographically the gap between these two populations is filled by the grey-coloured Israeli *A. beershebensis* (Moravec *et al*., 1999). The impressive close up of *Elaphe quatuorlineata* (without stating subspecies and locality) gives no clear impression of the colour pattern.

The Appendix begins with *Amphibians and Reptiles in the Holy Quran* and *Amphibians and Reptiles in the Holy Bible* (together 7 pp.), again perhaps not necessary in a field guide. This section might have been more appropriately included in "Reptiles and amphibians in the cultural heritage of Jordan", earlier in the book. The Bible translation used is not specified, although that may explain the omission of Proverbs, Chapter 30 (28) "The gecko (in some translations: spider) taketh hold with her hands, and is in kings' palaces". Next, the *Gazetteer* (2 pp.) is most welcome, though it quotes no source to the English spelling, which differs a little from that in the Times Atlas (1997) (e.g., Al 'Aqabah in the former, 'Aqaba in the latter), although one would expect both to follow the governmental map. I am exempt from commenting on *Antivenoms* (2 pp.), due to perfect ignorance. *Common Arabic names* (5 pp.) (meaning of course Arabic common names) is a major disappointment. First, one would have wanted these in the species accounts, despite the problematic situation explained by the authors: the names vary regionally, and the "official" ones are not in wide use. Second, the authors say, "This is the reason why we included also a table with official Arabic names." However, present is only one list, which looks more popular than official, with, for example, all lacertids plus the skinks *Mabuya* and *Ophiomorus* pooled as "sahliya", and most non-viperid snakes being "hayeh" while both *Typhlops* and *Cerastes* are called "Dudah". Finally the *References* (20 pp., >400 references) are a distinct asset although some that bear on field identification could be added, such as those on the mimicry-like behaviour of some snakes (Werner & Frankenberg, 1982; Werner, 1983). Indeed, the authors erroneously describe *Coluber nummifer* "The head is flattened, wide" (p. 259) whereas this only happens during the defensive behavioural head triangulation.

Throughout the book there are occasional linguistic mini-slip-ups, never jeopardizing the communication with the reader, yet, in a book, a little irritating. Some are independent of the language used, e.g., "… the number of eggs … varies between 6-14." (=varies between 6 and 14, or ranges 6-14, p. 142), or "An adult, basking male of…" (=a basking adult male, p. 168). Others concern the use of English, e.g., "Snakes are the most hardly predictable animals" (=Snakes are the least predictable, p.37), "The exact number of clutches … probably vary between one and three" (varies, p. 148), or "The nostrils lay on an entire nasal shield" (lie, p. 225). Some involve terminology, e.g., "*Coluber jugularis* … A polymorphic species with two … subspecies" (= polytypic species, p. 255).

The authors are, according to Böhme's preface (no dust jacket introduces them), a somewhat diverse team: "Prof. Ahmad M. Disi may be termed the influential founder of modern herpetology in Jordan. Dr. David Modrý and Petr Nečas, Czech Republic, two dedicated Moravian researchers, combine the facets of professionalism and knowledgeable amateur herpetology. Lina Rifai represents the next generation of students in herpetology in Jordan that will further develop the study of amphibians and reptiles in this country." The book produced by this team is, in summary, not only the best book on Middle East herpetology but also is – despite assorted mini-flaws awaiting correction in the next edition – a good and enjoyable book already in its present version.

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Yehudah L. Werner
The Hebrew University of Jerusalem